WHAT IS CLAIMED IS:

1. An isolated or purified peptide that is a PTH2 receptor ligand.

2. The peptide of Claim 1 comprising the sequence of SEQ ID NO:1.

3. The peptide of Claim 2, further comprising one or more amino acid substitutions at positions S1U, L2U, A3U, L4U, A5U, D6U, D7U, A8U, A9U, F10U, R11U, E12U, R13U, A14U, R15U, L16U, L17U, A18U, A19U, L20U, E21U, R22U, R23U, H24U, W25U, L26U, N27U, S28U, Y29U, M30U, H31U, K32U, L33U, L34U, V35U, L36U, D37U, A38U, and P39U, wherein U is any amino acid the substitution of which produces a peptide with PTH2 receptor binding activity.

4. The peptide of Claim 2, further comprising one or more of the amino acid substitutions selected from the group consisting of S1T, L2I, L2V, L2A, A3V, A3I, A3L, L4V, L4A, L4I, A5L, A5I, A5V, D6E, D7E, A8V, A8I, A8L, A9V, A9I, A9L, F10Y, F10W, R11K, R11H, E12D, R13K, R13H, A14V, A14I, A14L, R15K, R15H, L16V, L16I, L16A, L17V, L17I, L17A, A18V, A18I, A18L, A19V, A19I, A19L, L20I, L20V, L20A, E21D, R22K, R22H, R23K, R23H, H24R, H24K, W25Y, W25F, L26V, L26I, L26A, N27Q, S28T, Y29F, Y29W, M30C, H31R, H31K, K32R, K32H, L33V, L33I, L33A, L34V, L34I, L34A, V35I, V35L, V35A, L36V, L36I, L36A, D37E, A38V, A38I, and A38L, where the resulting peptide has PTH2 receptor binding activity.

5. An isolated or purified peptide comprising a sequence selected from the group consisting of SEQ ID NOs: 2-73.

6. An isolated or purified peptide comprising a sequence selected from the group consisting of SEQ ID NOs: 74-105.

7. An isolated or purified peptide that is at least 70 percent identical to the peptide of SEQ ID NO: 1 as determined by FASTA or BLAST using default opening and gap penalties and a PAM scoring matrix.

8. An isolated or purified complex comprising the PTH2 receptor and a PTH2 receptor ligand.

9. The complex of Claim 8 wherein the ligand comprises the sequence of SEQ ID NO:1.

10. An isolated or purified nucleic acid encoding a PTH2 receptor ligand.

11. The nucleic acid of Claim 10, wherein the ligand comprises the sequence of SEQ ID NO:1.

12. A computer-based system for identifying a PTH2 receptor-ligand binding domain comprising:

a) a data storage means comprising a peptide sequence selected from the group consisting of the sequences of the peptides of Claims 1, 2, 3, 4, 5, 6, and 7;

b) a search means for comparing a candidate sequence to the peptide sequence of step a) to obtain a binding domain; and

c) a retrieval means for obtaining said binding domain of step (b).

13. A method of identifying a PTH2 receptor-ligand binding domain comprising the step of comparing a database comprised of a peptide sequence selected from the group consisting of the sequences of the peptides of Claims 1, 2, 3, 4, 5, 6, and 7 with a candidate sequence to obtain a binding domain.

14. A method of screening comprising the steps of:

contacting a population of cells expressing the PTH2 receptor with a radiolabeled PTH2 receptor ligand to produce a PTH2 receptor-ligand complex;

contacting said complex with a library of compounds; and

selecting a candidate compound from said library, wherein said candidate compound competes for binding with said ligand.

15. A method of making a pharmaceutical comprising the step of combining the candidate compound obtained by the method of Claim 14 and a pharmaceutically acceptable carrier.

16. A method of activating a PTH2 receptor comprising the step of applying a peptide sequence selected from the group consisting of the sequences of the peptides of Claims 1, 2, 3, 4, 5, 6 and 7 to a PTH2 receptor.

17. A method of antagonizing a PTH1 receptor comprising the step of applying a peptide comprising the sequence of SEQ ID NO:7 to a PTH1 receptor.

18. An isolated or puried peptide comprising the sequence of SEQ ID NO:7.

19. A method for the treatment of a disorder mediated by binding a PTH2 or PTH1 receptor comprising the step of administering a peptide sequence selected from

the group consisting of the sequences of the peptides of Claims 1, 2, 3, 4, 5, 6 and 7 to a subject in need thereof.